



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/597,410

07/25/2006

Jason R. Hector

1044/226

1733

46852

7590

02/19/2010

LIU & LIU

444 S. FLOWER STREET, SUITE 1750

LOS ANGELES, CA 90071

EXAMINER

HICKS, CHARLES V

ART UNIT

PAPER NUMBER

2629

NOTIFICATION DATE

DELIVERY MODE

02/19/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

wliu@liulaw.com

julien@liulaw.com

docket@liulaw.com

Office Action Summary	Application No. 10/597,410	Applicant(s) HECTOR ET AL.	
	Examiner CHARLES HICKS	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☒ Claim(s) 1 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 December 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/18/2009</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This communication is responsive to amendments filed 12/18/2009. Figures 1-4 have been amended. Claim 12 has been amended. New claims 14-19 have been added. Claims 1-19 are pending.

Claim Objections

Claim 1 is objected to because of the following informalities: Claim 1 contains the word “proving”. Examiner believes the claim was meant to include the word “providing” and will interpret the claim in that manner. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 6-7, 10-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Fujii (US 7,071,929).

Art Unit: 2629

In reference to claim 1, Fujii teaches a display device comprising an array of pixels (Fujii, col. 1, ll. 33-36),

each pixel comprising a thin film transistor switching device (14) and a display element (16) (Fujii, col. 1, ll. 33-51),

the array being arranged in rows and columns, wherein each row of pixels shares a row conductor (10), which connects to the gates (14a) of the thin film transistors (14) of the pixels in the row (Fujii, col. 1, ll. 33-51),

wherein row driver circuitry (30) provides row address signals for controlling the switching of the transistors (14) of the pixels of the row (Fujii, col. 1, ll. 33-51),

wherein the row address signals each comprise a waveform (42, 44) for providing an ON gate voltage and an OFF gate voltage to the drive transistor (14) (Fujii, col. 1, ll. 33-51),

wherein the device further comprises control circuitry (50) for shifting the ON gate voltage and the OFF gate voltage in dependence on drive and/or environmental conditions (Fujii, col. 7, ll. 24-38, shifting the On gate voltage and the OFF gate voltage period by pulse width modulation),

the control circuitry (50) maintaining a constant difference (39) between the ON gate voltage and the OFF gate voltage (Fujii, col. 7, ll. 24-38; col. 4, ll. 35-40; pulse width modulated signal varying only the waveform period, and not amplitude of the On and Off gate signals).

Claim 2 is rejected as being dependent on rejected claim 1 as discussed above and further, Fujii teaches further comprising a temperature sensor (54), and wherein the control circuitry (50) shifts the ON gate voltage and the OFF gate voltage in dependence on temperature (Fujii, Abstract).

Claim 3 is rejected as being dependent on rejected claim 2 as discussed above and further, Fujii teaches wherein the ON gate voltage and the OFF gate voltage are both higher for lower temperatures than for higher temperatures (Fujii, Abstract).

Claim 6 is rejected as being dependent on rejected claim 1 as discussed above and further, Fujii teaches wherein each column of pixels shares a column conductor (12) to which pixel drive signals are provided, and wherein column address circuitry (32) provides the pixel drive signals (Fujii, col. 1, ll. 33-51).

Claim 7 is rejected as being dependent on rejected claim 1 as discussed above and further, Fujii teaches comprising a liquid crystal display (Fujii, Abstract).

In reference to claim 10, Fujii teaches a row driver circuit for an active matrix display device for providing row address signals (Fujii, col. 1, ll. 33-51),

in which device each pixel comprises a thin film transistor (14) switching device and a display element (16) (Fujii, col. 1, ll. 33-51),

and the row address signals are provided to the gates (14a) of the thin film transistors (14) of the pixels in the row (Fujii, col. 1, ll. 33-51),

wherein row driver circuit comprises: means (30) for providing row address signals comprising a waveform for providing an ON gate voltage and an OFF gate voltage to the drive transistor (Fujii, col. 1, ll. 33-51),

an input for receiving a control signal (52) dependent on drive and/or environmental conditions (Fujii, Abstract; Fig. 1);

and means (50) for shifting the ON gate voltage and the OFF gate voltage in response to the control signal (52) (Fujii, col. 7, ll. 24-38, shifting the On gate voltage and the OFF gate voltage period by pulse width modulation),

and maintaining a constant difference between the ON gate voltage and the OFF gate voltage (Fujii, col. 7, ll. 24-38; col. 4, ll. 35-40; pulse width modulated signal varying only the waveform period, and not amplitude of the On and Off gate signals).

In reference to claim 11, Fujii teaches a method of generating row address signals for an active matrix display device (Fujii, col. 1, ll. 33-51),

the method comprising: providing row address signals (42, 44) comprising a waveform for providing an ON gate voltage and an OFF gate voltage to the drive transistors (14) of the pixels in a row (Fujii, col. 1, ll. 33-51),

and shifting the ON gate voltage and the OFF gate voltage in dependence on drive and/or environmental conditions (Fujii, col. 7, ll. 24-38, shifting the On gate voltage and the OFF gate voltage period by pulse width modulation),

Art Unit: 2629

whilst maintaining a constant difference between the ON gate voltage and the OFF gate voltage (Fujii, col. 7, ll. 24-38; col. 4, ll. 35-40; pulse width modulated signal varying only the waveform period, and not amplitude of the On and Off gate signals).

Claim 12 is rejected as being dependent on rejected claim 11 as discussed above and further, Fujii teaches wherein the shifting is in dependence on temperature (Fujii, Abstract).

Claim 14 is rejected as being dependent on rejected claim 1 as discussed above and further, Fujii teaches wherein the control circuitry shifts both of the ON gate voltage and the OFF gate voltage (Fujii, col. 7, ll. 24-38, shifting the On gate voltage and the OFF gate voltage period by pulse width modulation).

Claim 15 is rejected as being dependent on rejected claim 14 as discussed above and further, Fujii teaches wherein the control circuitry shifts both of the ON gate voltage and the OFF gate voltage by applying a DC voltage to a common electrode (Fujii, col. 7, ll. 24-54, shifting the On gate voltage and the OFF gate voltage period by pulse width modulation, while applying a DC voltage to a common electrode of the display drivers).

Claim 16 is rejected as being dependent on rejected claim 10 as discussed above and further, Fujii teaches wherein the means for shifting shifts both of the ON

Art Unit: 2629

gate voltage and the OFF gate voltage (Fujii, col. 7, ll. 24-38, shifting the On gate voltage and the OFF gate voltage period by pulse width modulation).

Claim 17 is rejected as being dependent on rejected claim 16 as discussed above and further, Fujii teaches wherein the means for shifting shifts both of the ON gate voltage and the OFF gate voltage by applying a DC voltage to a common electrode (Fujii, col. 7, ll. 24-54, shifting the On gate voltage and the OFF gate voltage period by pulse width modulation, while applying a DC voltage to a common electrode of the display drivers).

Claim 18 is rejected as being dependent on rejected claim 11 as discussed above and further, Fujii teaches wherein the shifting step comprises shifting both of the ON gate voltage and the OFF gate voltage (Fujii, col. 7, ll. 24-38, shifting the On gate voltage and the OFF gate voltage period by pulse width modulation).

Claim 19 is rejected as being dependent on rejected claim 18 as discussed above and further, Fujii teaches wherein the shifting step comprises shifting both of the ON gate voltage and the OFF gate voltage by applying a DC voltage to a common electrode (Fujii, col. 7, ll. 24-54, shifting the On gate voltage and the OFF gate voltage period by pulse width modulation, while applying a DC voltage to a common electrode of the display drivers).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 4, 5, 9, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujii (US 7,071,929) in view of Moriyama (US 2001/0017611).

Claim 4 is rejected as being dependent on rejected claim 1 as discussed above and further, Fujii however fails to teach wherein the control circuitry shifts the ON gate voltage and the OFF gate voltage in dependence on the display device refresh rate.

Moriyama discloses a display apparatus and driving method, analogous in art with that of Fujii, wherein the control circuitry shifts the ON gate voltage and the OFF

Art Unit: 2629

gate voltage in dependence on the display device refresh rate (Moriyama, pg. 3, par. 39).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to modify the display device of Fujii wherein the control circuitry shifts the ON gate voltage and the OFF gate voltage in dependence on the display device refresh rate, as taught by Moriyama.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been to attain a low consumptive power manner optimal for the driving method of the active matrix drive type (Moriyama, pg. 1, par. 14).

Claim 5 is rejected as being dependent on rejected claim 4 as discussed above and further, Fujii modified by Moriyama teaches wherein the ON gate voltage and the OFF gate voltage are both higher for higher refresh rates than for lower refresh rates (Moriyama, pg. 9, par. 145).

Claim 9 is rejected as being dependent on rejected claim 1 as discussed above and further, Fujii however fails to specifically teach a portable device having a display device.

Moriyama discloses a display apparatus and driving method, analogous in art with that of Fujii, wherein there is a portable device having a display device (Moriyama, pg. 1, par. 4)

Art Unit: 2629

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to modify the display device of Fujii to be a portable device having a display device, as taught by Moriyama.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been the well known practice of making electronic devices portable.

Claim 13 is rejected as being dependent on rejected claim 11 as discussed above and further, Fujii however fails to teach wherein the shifting is in dependence on the display device refresh rate.

Moriyama discloses a driving method wherein the On gate voltage and Off gate voltage is shifted, analogous in art with that of Fujii, wherein the shifting is in dependence on the display device refresh rate (Moriyama, pg. 3, par. 39).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to modify the display device of Fujii wherein the shifting is in dependence on the display device refresh rate, as taught by Moriyama.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been to attain a low consumptive power manner optimal for the driving method of the active matrix drive type (Moriyama, pg. 1, par. 14).

Art Unit: 2629

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujii (US 7,071,929) in view of Hong (US 2004/0169627).

Claim 8 is rejected as being dependent on rejected claim 1 as discussed above and further, Fujii however fails to teach further comprising means for compensating for kickback.

Hong discloses a liquid crystal display, analogous in art with that of Fujii, further comprising means for compensating for kickback (Hong, pg. 4, par. 73).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to modify the display device of Fujii such that it further comprises means for compensating for kickback, as taught by Hong.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been to decrease the variation of the pixel voltage to improve image quality by reducing flicker (Hong, pg. 4, par. 73).

Response to Arguments

Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new ground(s) of rejection. Applicants argue on page 9 of applicant's response that the cited portions of Fujii involve different embodiments, and that the cited prior art does not teach shifting of ON and OFF gate voltages. Examiner agrees that different embodiments were previously used in the rejection. In the current

Art Unit: 2629

action, Examiner has used a single embodiment that teaches shifting of ON and OFF gate voltages.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHARLES HICKS whose telephone number is 571-270-7535. The examiner can normally be reached on Monday-Thursday from 7:30 to 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz, can be reached on 571-272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sumati Lefkowitz/

Supervisory Patent Examiner, Art Unit 2629